

# **THE NEED FOR ACOUSTICS EDUCATION IN PERFORMANCE MUSIC SYLLABI**

**Luis Gomez-Agustina  
London South Bank University , LSBU**

**IOA Nottingham 21 Nov 2017**

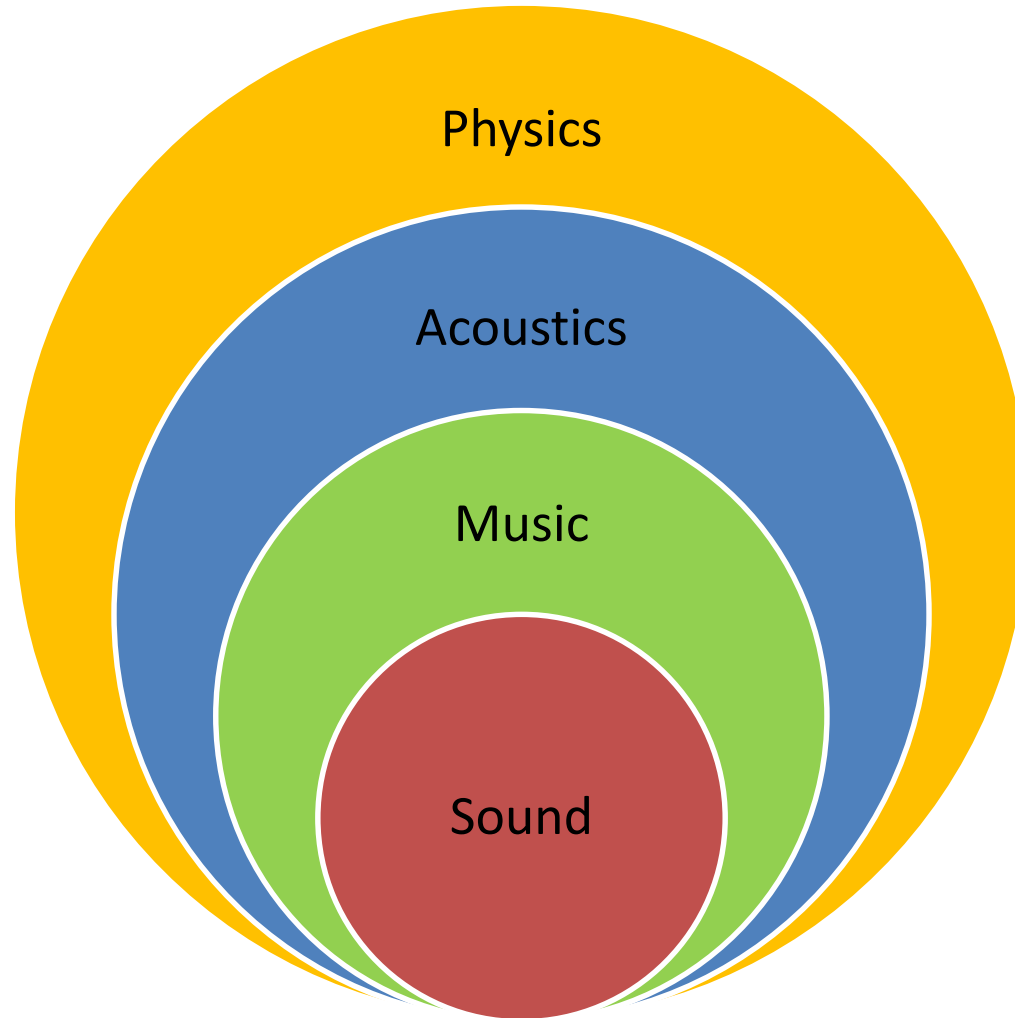
# Acoustics and Music



Acoustics is the underlying physical phenomenon and vehicle of music composition, performance and reception

It affects the perception of performers and other listeners such as audiences and conductors

# Interrelations



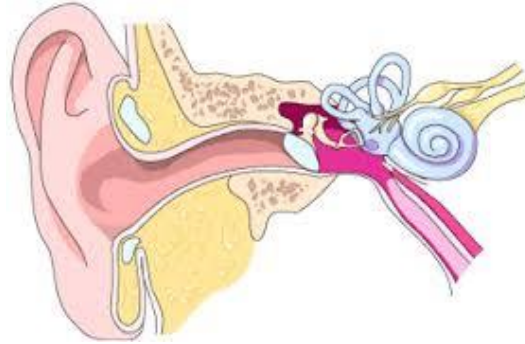
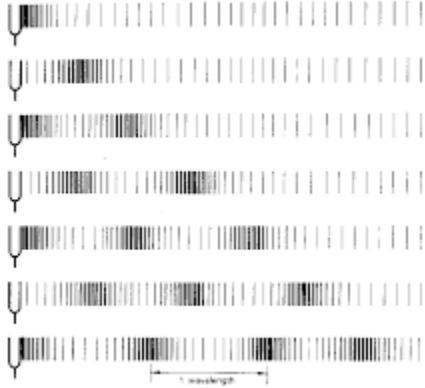
# Research Rationale



This essential link (music- acoustics) remains ignored or taken largely for granted in music education

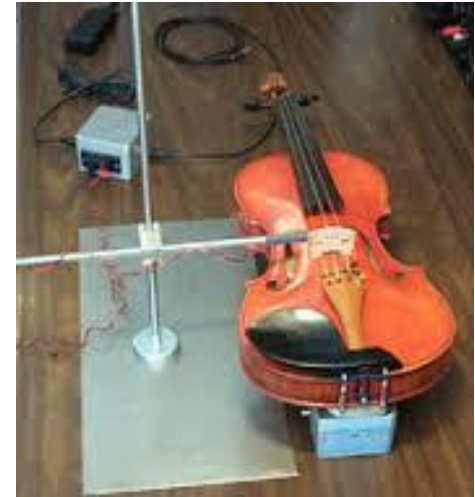
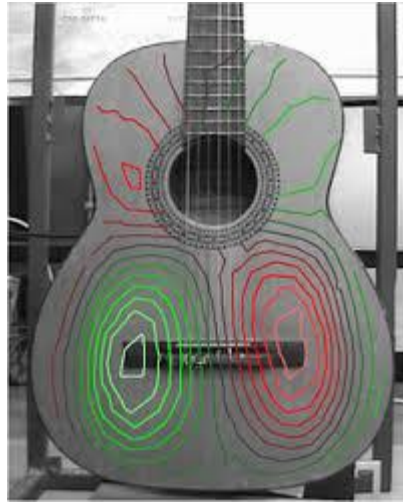
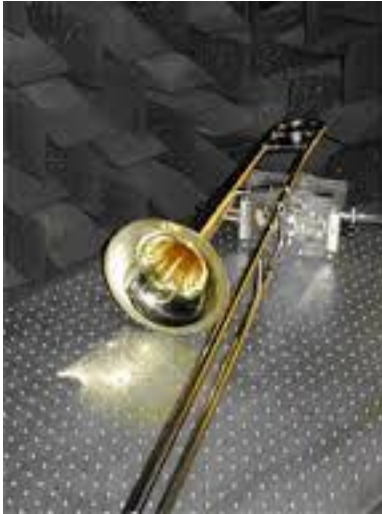
Musicians, composers and conductors complete their extensive musical training without a basic understanding of the fundamental acoustic concepts supporting their practice.

# Basic acoustic education



- The nature of sound
- The auditory system
- Hearing conservation
- Psycho-acoustics
- Room acoustics
- Acoustics of performance spaces
- Musical acoustics

# Literature review



Substantial research on musical acoustics\* topics

Some musical acoustics taught only in 3 UK music HE institutions

However this instruction largely focuses on instrumentation

Some leading conservatoires have introduced scientific subjects

No study, report or initiative has been found on basic acoustics education in performance music training

# Precursor arguments



Lack of acoustics education makes student training incomplete  
Its introduction in the curriculum would :

- enhance holistic approaches to musical performativity
- create better informed and more multidisciplinary performer

# Aims of the study



1. Explore and evaluate the perceived value, suitability, and attitudes towards a potential introduction of basic acoustic education in the UK performance music curriculum
2. Provide evidence to support a prospective introduction



# Methodology I



Phenomenological approach chosen, informed by social science

A combination of quantitative and qualitative methods was used to obtain robust inferences and reliable findings

Data collected:

- (1) an extensive UK-wide online survey
- (2) semi structured interviews and
- (3) a documentary analysis

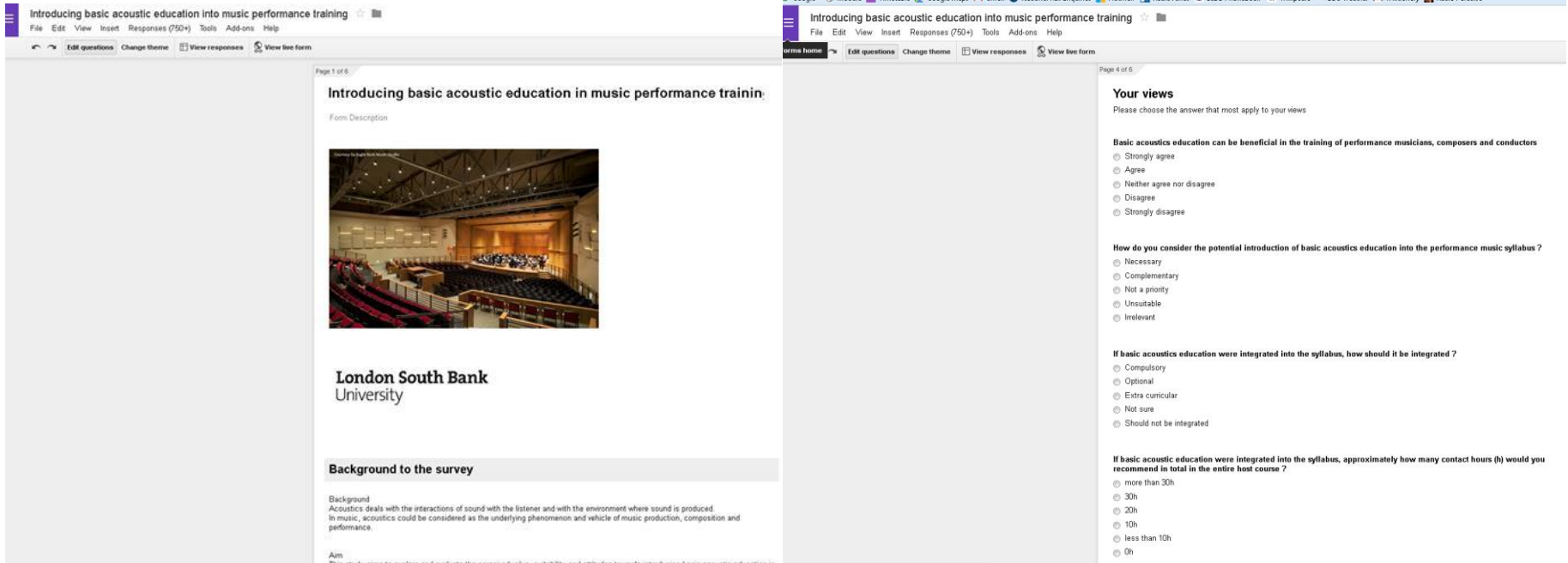
# Online survey I



Designed to collect demographic and attitudinal data from UK HE performance music education community (conservatoires, academies, universities with music departments, professional groups)


Qualifying respondents: trained musicians (amateur or professional performers), students, teachers, academics, researchers, conductors, composers, HE institution management and acousticians having formal musical training or substantial musical background

# Online survey II



The image shows two side-by-side screenshots of a survey form. The left screenshot is 'Page 1 of 5' and displays the title 'Introducing basic acoustic education in music performance training', a form description, a photograph of a concert hall, the London South Bank University logo, and a 'Background to the survey' section. The right screenshot is 'Page 4 of 5' and shows a 'Your views' section with three questions, each with five radio button options.

**Introducing basic acoustic education in music performance training**  
Form Description



**London South Bank University**

**Background to the survey**

Background  
Acoustics deals with the interactions of sound with the listener and with the environment where sound is produced. In music, acoustics could be considered as the underlying phenomenon and vehicle of music production, composition and performance.

Aim

**Your views**  
Please choose the answer that most apply to your views

**Basic acoustics education can be beneficial in the training of performance musicians, composers and conductors**

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

**How do you consider the potential introduction of basic acoustics education into the performance music syllabus?**

- Necessary
- Complementary
- Not a priority
- Unsuitable
- Irrelevant

**If basic acoustics education were integrated into the syllabus, how should it be integrated?**

- Compulsory
- Optional
- Extra curricular
- Not sure
- Should not be integrated

**If basic acoustic education were integrated into the syllabus, approximately how many contact hours (h) would you recommend in total in the entire host course?**

- more than 30h
- 30h
- 20h
- 10h
- less than 10h
- 0h

Online survey questionnaire: Nov 2014 and June 2016

Basic acoustic education defined in the introduction

12 multi-choice closed-ended questions

Q1 to Q8 demographic questions

Q9 to Q12 key attitudinal / opinion questions

Question 13 was open ended for free comment

# Semi structured interviews



Designed to complement the online questionnaire

21 open ended questions based on online questionnaire

Content analysis techniques employed to analyse and infer meaning from patterns observed from interview responses.

# Documentary analysis

In 2013-14 in the UK 71 HE institutions offered courses in music and music performance programmes (HESA, April 2015 )

HESA (Higher Education Statistics Agency)

1,900 students admitted in the 8 UK conservatoires alone (2013)

Estimated 10,000 students enrolled in music related degrees (2013)

UCAS

UCAS  
Conservatoires

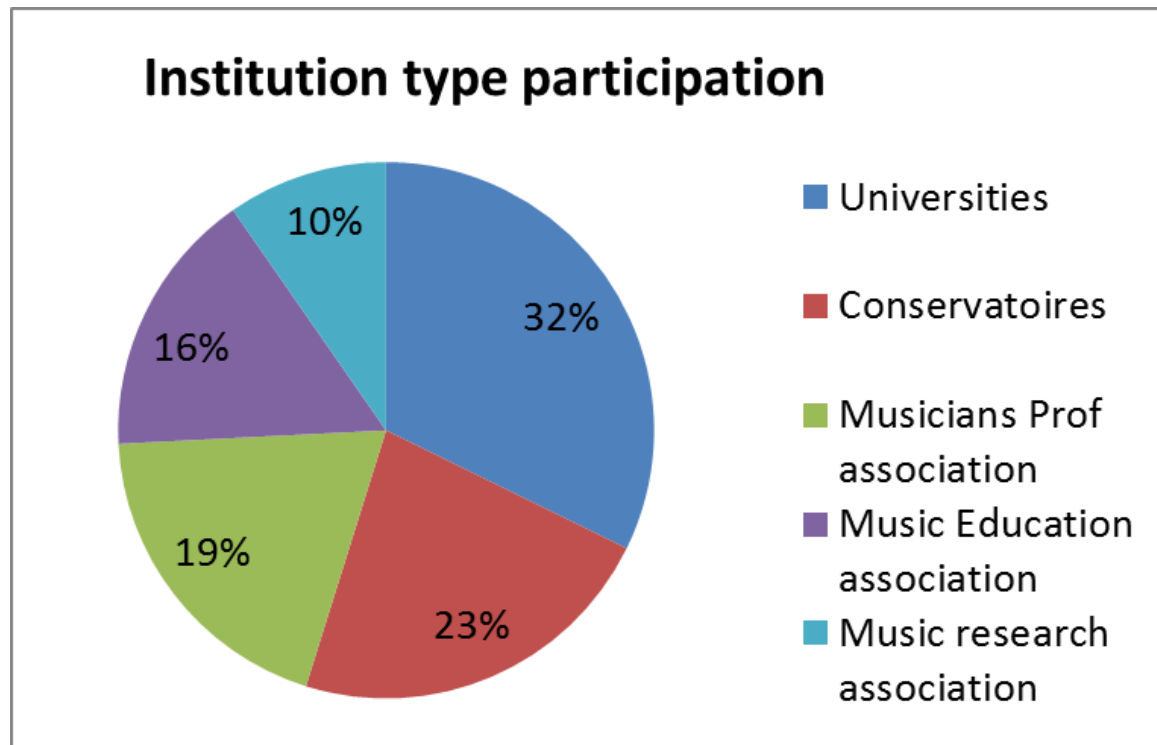


**HESA**  
HIGHER EDUCATION  
STATISTICS AGENCY

# Study participation

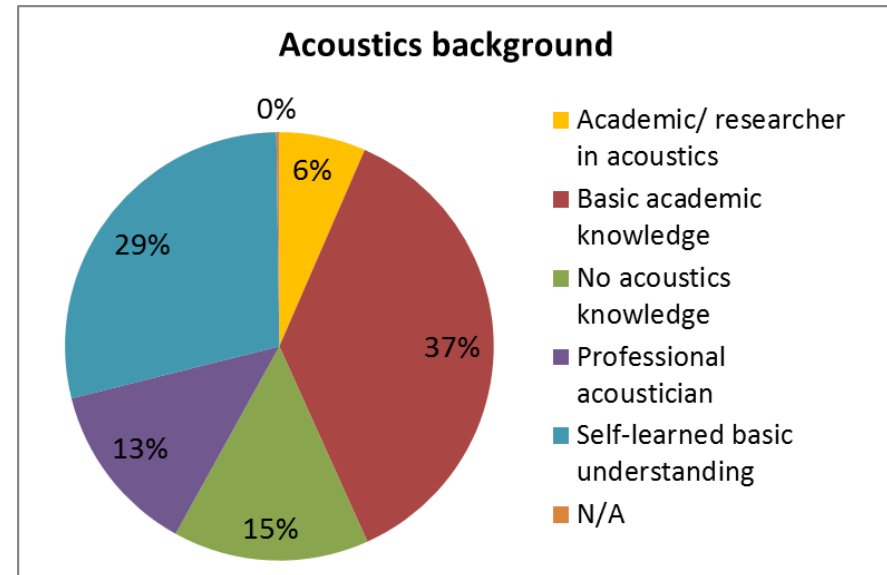
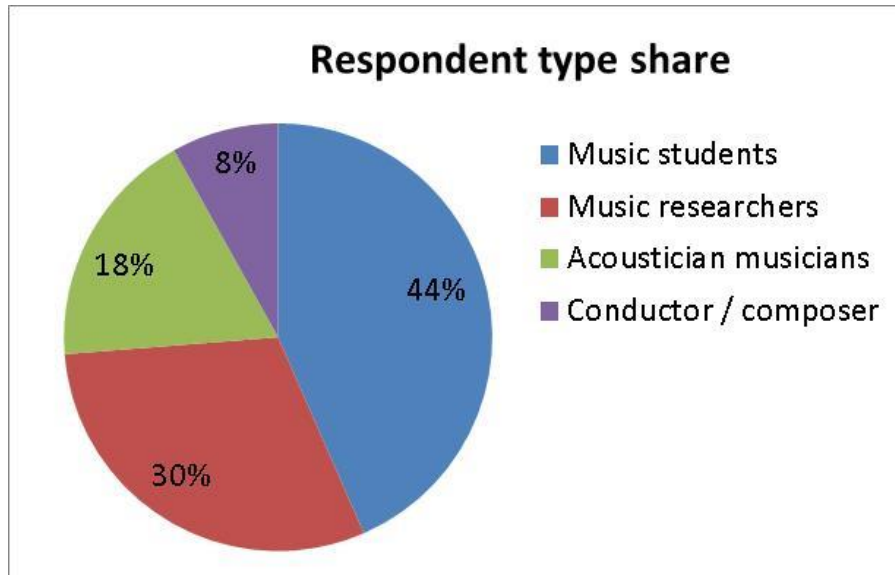
40 performance music related institutions in the UK were invited to participate in this study

31 participated by distributing the online survey questionnaire among their students and staff as well as facilitating interviews.



# Online survey sample composition I

595 questionnaires completed online, 97% valid



94% declared they have > 4 years of formal music training

56% possess at least basic academic knowledge of acoustics

29% possess self-learned basic acoustics knowledge

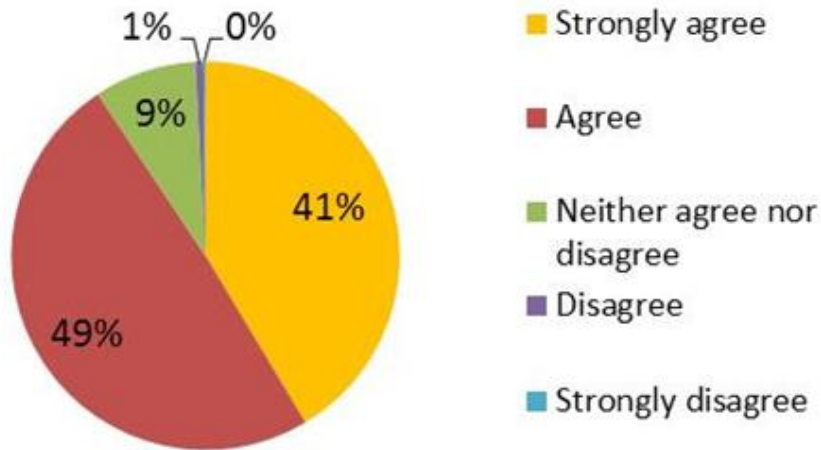
51% have > 1 year of acoustic education or experience

# Key results I

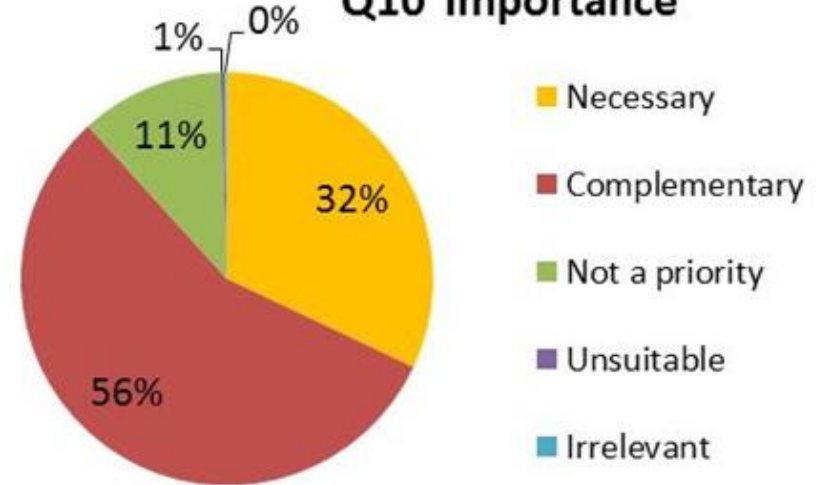
*Q9 Do you think that basic acoustic education can be beneficial in the training of performance musicians, composers and conductors ?*

*Q10 How do you consider the potential introduction of basic acoustic education into the performance music syllabus ?*

**Q9 Beneficial statement**



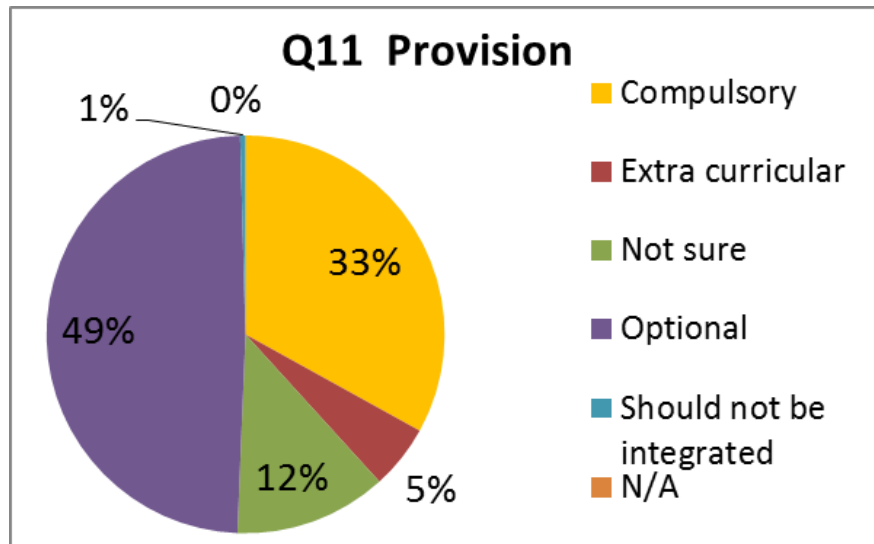
**Q10 Importance**





# Key results II

*Q11 If basic acoustic education were integrated into the syllabus, how should it be integrated ?*



Combined, 87% agree with providing the introduction in some way  
Only 0.4% believes acoustic education should not be integrated  
These results are consistent with previous questions Q9 and Q10

# Interview responses I

22 interviews completed by experienced performers/academics

All interviewees unanimously agreed with Q9 statement

The majority (17) considered introduction very important while 5 of them believed this to be of moderate importance (Q10)

*"Extremely important. I wish this subject had been available to me during my studies. Musicians create sound for a living. It's shocking that we are not better educated in the science of sound"* (Georgia Browne, Senior flutist performer and flute teacher, MMus,)

*"..I think It is a great idea, I really do. It should been thought earlier !"* (Stuart Morley, musical director, pianist and vocal coach at London Royal Academy of Music, MusDip)

*"Yes, very useful, very important"* (Dr Michelle Phillips, Lecturer at Royal North College of Music , Head of Music Undergraduate Programmes, saxo and flute performer, PhD)

# Interview responses II

*"...It is in fact remarkable that acoustics haven't been incorporated into the curriculum earlier"* (Petur Jonnanson, Head of guitar studies Iceland Academy of the Arts, MMus)

*"..This is a very important idea.."* (Prof Murray Campbell at Edinburgh University, world authority in musical acoustics, author of seminal book, piano and trombone player, PhD)

*"Yes I strongly believe it is very important, for composers especially"* (Dr John Cole, Area Leader in Postgraduate Composition, Royal College of Music, senior composer, conductor, PhD)

*"Moderately important. Musicians have gotten by without it for a long time"* (Dr Matthew Wright, Lecturer in music acoustics at Southampton University, amateur musician, PhD acoustics).

# Findings

## Benefits identified from a prospective introduction :

- Understand the historical significance of acoustics in music context
- Hearing loss prevention and understanding of hearing system
- Increase sensitivity and awareness of characteristics of instruments
- Improve comms & appreciation of other related professionals
- Enrichment of musical learning experience
- Improvement in aural skills + performance in composing and opera
- Awareness of acoustics industry for enhanced employability
- Alignment with emerging trend to produce more rounded musicians in a multidisciplinary industry

Barriers: Initial lack of appreciation of the potential value and benefits, lack of qualified staff, crowded syllabus, cost/revenue

Drawbacks None found

# Conclusions

The vast majority of the HE performance music community in the UK believe that the proposed novel introduction would be highly beneficial and relevant

The large majority of that community, support the implementation of acoustics training although views on suitable modes of implementation and duration differed



The results strongly support the argument that there is a perceived knowledge gap in performance music education in the relevant field of acoustics

# Further work

Future work will consist of the research, design and development of a pilot introduction at a suitable institution



# Quick opinion poll

Show of hands



**Q9** Do you think that basic acoustic education can be beneficial in the training of performance musicians, composers and conductors ?

# Questions time



[gomezagl@lsbu.ac.uk](mailto:gomezagl@lsbu.ac.uk)